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AUTHOR Weinberger, Elizabeth; McCombs, Barbara L.
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ABSTRACT

This paper focuses on data collected from students in grades 4-8, using the Assessment of Learner Centered Practices (ALCP) survey tools, including multiple academic and nonacademic student outcome measures. In national samples of more than 4,203 upper elementary and middle school students in rural, urban, and suburban schools, data indicated that as students' perceptions of their teachers' classroom practices became more learner-centered, not only did academic performance increase (as assessed by both teacher classroom grades and standardized achievement tests), but nonacademic outcomes such as motivation to learn, school attendance, and school disruptions also improved. The importance of specific practices that improve both academic and nonacademic outcomes is discussed, especially for students at risk of academic failure. Implications for changing current practices to achieve a balanced focus on learning and learners are outlined briefly. (Contains 2 tables, 8 figures, and 38 references.) (Author/SLD)

The Impact of Learner-Centered Practices on the Academic and Non-Academic Outcomes of Upper Elementary and Middle School Students

Elizabeth Weinberger and Barbara L. McCombs

University of Denver Research Institute

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Abstract

This paper focuses on data collected from students in Grades 4-8, using the ALCP survey tools, including multiple academic and non-academic student outcome measures. In national samples of over 4,203 upper elementary and middle school students in rural, urban, and suburban schools, data indicated that as students' perceptions of their teacher's classroom practices became more learner-centered, not only did academic performance increase (as assessed by both teacher classroom grades and standardized achievement tests), but non-academic outcomes such as motivation to learn, school attendance, and school disruptions also improved. The importance of specific practices that improve both academic and non-academic outcomes is discussed, particularly for students at risk of academic failure. Implications for changing current practices to achieve a balanced focus on learning and learners are briefly outlined.

Generation Y children feel alone, alienated, and stressed. Both researchers and students have noted that today's youth feel disconnected and question their existence, purpose, and the meaning of life (Brendtro, 1999; Brendtro, Brokenleg, & VanBocern, 1992; Wheatley, 1999). In a survey of 825 students aged 11-18 in Colorado, the *Denver Rocky Mountain News* (December 10, 1998) reported that one third of the students surveyed did not feel valued or cared about, 56% of the students in grades 5-7 felt adults didn't value them, and 78% of the students in grades 8-12 felt adults didn't value them. Ninety-nine percent of those surveyed wanted respect and attention from adults (average adults spend only 7 minutes of quality time each day with their children). Furthermore, students from Columbine High School indicated that the culture of clicks, vicious hazing, bullying, and basic mistrust of peers were common occurrences in school (*Denver Post*, July 20, 1999). The fear and pain levels of these students is not only evident atColumbine, but among students of all ages in various parts of the nation. Many youth are subjects of "recreational ridicule" and hardcore bullying. As a result, these youth often resort to "outcast bonding" with other alienated youth (Brendtro, 1999). In addition, these feelings of alienation have been linked to such youth issues as school dropout, suicide, alcohol and drug use, school violence, and delinquent behaviors. In this time of youth turmoil, something needs to be done to help youth feel more connected in order to increase student motivation, student achievement, and school attendance, and reduce delinquent behaviors.

Youth Want their Voices to be Heard

Although youth are increasingly feeling more alienated and alone, they are reporting ways in which society can help them feel more connected. Students across the nation are increasingly asking to be heard, to be listened to, and to have an educational experience that respects and responds to their perspectives and needs. Students from Columbine High School

who were interviewed in the MTV Forum on Violence, helped confirm this when they said, "You must listen to us. You must talk to us, (*Denver Post*, July 20, 1999).

The major cause of youth violence and delinquency are the "broken bonds" between adults and youth – caused by adults being too busy to connect with youth and by adults focusing their priorities on the pursuit of wealth and material things. In order to offset feelings of abandonment, distrust needs to be replaced with trust that is earned by listening to youth, honoring what they say, and focusing on the social climate in schools (Bendtro 1999). Bendtro et al. (1992) argue that the process for reclaiming youth at risk should be based on empowering youth to care and contribute to the betterment of their families, friends, schools, and communities. These researchers go on further to say that it is not sufficient for adults to care; they must also provide the structure and guidance to instill social responsibility, respect for diversity, and an understanding of our interdependencies. The process should be a developmental one, moving from meeting needs for belonging, mastery, and independence towards outcomes of generosity and caring.

By listening to students, researchers have found more effective practices for engaging students in the process of learning and better ways to satisfy their natural curiosity. Furthermore, when students are provided with conditions that foster their natural motivation to learn, their feelings of anger and rebellion are reduced. These feelings of anger and rebellion are common reactions to conditions that do not allow student choice, do not respect students' feelings or interests, and do not consider students' perspectives (McCombs & Whisler, 1997; Rogers & Freiberg, 1994; Ryan, 1992).

Strategies to Help Engage Youth

For our current generation of school-aged children-- many of whom already feel alienated and disconnected from adults and learning-- it is particularly important to develop

comprehensive, learner-centered prevention approaches that teach children and youth to avoid negative classroom behaviors, increase personal and social responsibility for school and societal safety, and cultivate empathy and morality. Current research (Harper, 1998; Astor, Meyer, & Behre, 1999) suggests that the best intervention is to foster positive student-teacher involvement, in addition to giving students ownership of problems such as disruptive behavior, school safety, poor attendance, low motivation, and minimal achievement.

One program that listens to what youth have to say is the "Generation WHY" program, developed by Dr. Dennis Harper in the Olympia Washington School District (Harper, 1997, 1998). Generation WHY students, in grades 6-12, are involved in collaboration with teachers, the local community, higher education, and corporate sponsors to assist in the restructuring of education through telecommunications. These students receive an 18-week semester course that teaches them technology, mentoring, and lesson planning skills necessary to mentor one of their teachers during the regular school day. The mentoring is aimed at integrating technology into lesson plans and units. Students who graduate from the Generation WHY program have the opportunity to work with elementary schools, administrators, classified personnel, teacher education institutions, and the community to use technology to improve the teaching and learning process – in ways that are relevant and meaningful to students. This program has lead to greater student engagement in learning, increased school attendance, and reduced discipline problems. Furthermore, this program has allowed youth and teachers to form new positive relationships. As a result, school cultures of mutual respect and caring have emerged. This program shows that students can greatly contribute to transformed practices and in doing so, improve their motivation for learning and their relationships with adults.

Students want to take responsibility for their school environment. When students are given the responsibility and ownership in a context of caring and quality relationships, they

become part of the solution and co-create positive strategies and new learning communities. Furthermore, giving students voice and ownership creates an increased personal and social responsibility, and can have positive motivational, academic, and social-cultural benefits. Research literature is growing in its support of strategies that are based on student as well as adult views and perceptions, along with positive, caring relationships rather than coercive and punitive approaches (Astor, 1998; Astor, Meyer, & Behre, 1999; Harter, 1996; Kenney & Watson, 1999; Noguera, 1995; Rosenberg, McKeon, & Dinero, 1999; Wentzel, 1998; Wentzel & Wigfield, 1998). Furthermore, successful education models that give students more responsibility for their learning are increasing in support. For example, Glasser's (1990, 1994) Quality School model is based on the assumption that children must make the choices and take responsibility for their own learning and performance evaluations. In addition, DuFour (1999) describes guidelines for school principals and administrators that emphasize less command and control and more shared leadership and decision-making.

Kenney and Watson (1999) report that, when given the chance, students contribute positively to creating new cultures of fairness and caring. Therefore, in order to address motivation, learning, achievement, and positive functioning, it is critical that there be an equal focus on the learner in addition to focusing on learning. Furthermore, the knowledge base about both learners and learning must be considered if new models of learning and schooling are going to have maximum positive impact for future learners. This implies that there must be increased attention to the personal domain (i.e. the domain of educational systems design that is concerned with supporting the personal, motivational/learning, and interpersonal) in addition to the more commonly addressed technical and organizational components of school design.

Sharing Power and Control with Learners

Teachers are often held responsible for student learning, but *it is the student who makes the decision to learn.* Teachers *cannot make learning happen*; they can only encourage and persuade with a variety of incentives (Vatterott, 1995). Although teachers can provide learning incentives, they know only to well that many of these incentives (e.g. grades, fear of discipline) only work for some students. Furthermore, when teachers try to overly control the learning process or get students to take responsibility within the teacher's parameters and by the teacher's rules, they may get obedience or compliance, but they won't get responsibility.

When learners of any age are empowered and feel ownership of their own learning, by virtue of having a voice and choice, *they are more willing to learn and be involved in their own learning.* If learning experiences are consistent with this research-based learner-centered practice, the learning process is facilitated with opportunities for student choice in meeting their individual needs and making personal connections with prior and new knowledge.

Learning is more fun and exciting for all parties involved when both students and teachers share in the pleasures and responsibilities of control. Responsibility begins with making choices. Without the opportunity to choose, to make decisions, and to face the consequences of those decisions, there is no sense of ownership and empowerment. If learners do not have this sense of ownership and empowerment that comes from responsibility and accountability, they run the risk of complying with others and blaming them when things go awry. Simply put, it is in the nature of human beings to strive for control and autonomy, and to feel they are masters of their own destinies (cf. Deci & Ryan, 1991; Ryan, 1992, 1995). When opportunities are provided to meet this innate need and when this element of the personal domain is included, the natural response is to feel empowered with a sense of ownership and responsibility. In a nutshell, *we own what we*

create and, as illustrated earlier, new instructional models are increasingly recognizing this implication of the learner-centered principles.

The Role of Learner-Centered Principles and Practices

With a person-centered approach to educational reform, the focus is on the psychological, emotional, and social needs of learners and interventions that maximize healthy functioning such that motivation, learning, and achievement are promoted for all learners. The research-validated *Learner Centered Psychological Principles* (APA, 1993, 1997) provide a knowledge base for understanding that learning and motivation are natural processes that occur when the conditions and context of learning are supportive of individual learner needs, capacities, experiences, and interests. Attention to the knowledge base on learners and learning is essential to defining the personal domain of educational systems.

A central understanding that emerges from an integrated and holistic look at the 14 APA *Principles* is that for educational systems to serve the needs of all learners, there must be a focus on the individual learner as well as an understanding of the teaching and learning process (McCombs & Whisler, 1997). The *Principles* apply to all learners, in and outside of school, young and old. Learner-centered is also related to the beliefs, characteristics, dispositions, and practices of teachers-- practices created primarily by the teacher. When teachers and their practices function from an understanding of the knowledge base delineated in the *Principles*, they (a) include learners in decisions about how and what they learn and how that learning is assessed; (b) take seriously each learner's unique perspectives; (c) respect and accommodate individual differences in learners' backgrounds, interests, abilities, and experiences; and (d) treat learners as co-creators and partners in the teaching and learning process. Teacher qualities, then, define one dimension of "learner-centeredness." Another critical dimension involves the characteristics of instructional practices.

Learner-centered practices are characterized as those that attend to the knowledge base and research on both learners and learning. When the focus is on only the research on learning (without also considering what we know about individual learners), the system can get out of balance. When the focus is also on the learner, effective strategies not only address high academic achievement and learning, but are also concerned with offsetting student problems of alienation, lack of engagement, fear of failure, or stress and overwhelm. Two areas in particular address learner needs in today's school cultures: Sharing power and control with learners and building positive personal relations and meaningful connections.

The Learner-Centered Model (McCombs, 1995, 1997, 1998; McCombs & Whisler, 1997) is shown in Figure 1 and provides a research-validated, principle-based framework for both sharing power and control with students and for building the positive relationships and connections essential to high motivation and achievement. Unlike many programs currently being implemented, however, the Learner-Centered Model provides an overall framework for aligning practices such that they are comprehensive, systemic, and consistent with current research and the APA *Principles*. As such, then, this is a meta-model for designing, implementing, and evaluating programs and practices at all levels of the educational system – from classroom to school to community levels and from a look at personal beliefs to practices to expected outcomes.

Insert Figure 1 about here

The overall model (see Figure 1) of the relationships between teacher beliefs and perceptions of their classroom practices and how this influences student perceptions of these practices has been shown to lead to the identification of those domains of classroom practice that

are most predictive of positive outcomes (McCombs, 1998, 1999a; McCombs & Lauer, 1997; McCombs & Quiat, 1999) for students from kindergarten through college age (Daniels, Kalkman, & McCombs, in press; Lauer, McCombs, & Pierce, 1998; McCombs & Lauer, 1998; Perry & Weinstein, 1998). For students in the K-12 age range, the domains of practice most important to high motivation and achievement are those that (a) create positive personal relationships and a caring classroom climate (b) honor student voice, including practices that academically challenge each student and encourage students to engage in perspective taking strategies that honor and respect diverse views; (c) support students' development of higher-order thinking, problem-solving, and self-regulated learning skills; and (d) adapt to a range of individual differences in development, culture, and other background and learning differences.

The current study seeks to examine the relationships between student perceptions of the "learner-centeredness" of their teachers' classroom practices and a variety of student academic and non-academic outcomes, including the number of class absences and disruptive behavior. Four research questions are addressed: (1) Do student perceptions of their teacher's learner-centered practices result in different motivational outcomes, academic achievement, school attendance, and teacher perceptions of student disruptive behavior? (2) Are particular domains of practice (e.g. creating positive relationships, honoring student voice, facilitating critical thinking and learning skills, adapting to individual differences) differentially important with respect to various academic and non-academic outcomes? (3) What roles do teacher beliefs about learners and middle childhood, teacher perceptions of their learner-centered practices, teacher self-efficacy, teacher reflective self-awareness, and a teacher's degree of classroom control play on student perceptions of their teacher's learner-centered practices, student motivation, and academic achievement? (4) Are the particular teacher variables reported above differentially important with respect to various academic and non-academic outcomes?

Research Design and Methodology

Participants

The participants were 4,203 fourth through eighth grade students and their 230 teachers from 31different elementary and middle schools. 2,020 of these students were reported being female, and 1,811 were reported being male. In addition, 1,531 were reported as Hispanic, 1,658 were reported as African American, 332 were reported as Caucasian, 165 were reported as Asian, and 284 were reported as another ethnicity. The 31 schools are distributed in three urban, two suburban, and one rural Midwestern and eastern region school districts with high proportions of students at risk of alienation and school failure. Of the 4,203 students and their 230 teachers, only 1,762 students and their 101 teachers had disruptive behavior data. Therefore, analyses done on student disruptive behavior will be conducted on these 1,762 students. In addition, of the 4,203 students and their 230 teachers, only 1,495 students and their 95 teachers had class absence data. Therefore, analyses done on the number of student absences will be conducted on these 1,495 students. All participating classes (n = 230) of students and teachers completed measures as described below.

Measures Administered

To address the four research questions, teacher and student surveys for grades 4-8 that assess student and teacher perceptions of learner-centered practices at the classroom and school levels were used (McCombs, 1999a). The Assessment of Learner-Centered Practices (ALCP) survey tools were the primary vehicles for collecting participant perceptions of the "learner-centeredness" of current instructional practices. These self-assessment surveys address teacher characteristics and beliefs and their consistency with the APA *Principles*. For teachers and students, the surveys provide a research-validated way to also self-assess the degree to which classroom practices are in keeping with the APA *Principles* in four domains shown by current

research to be related to positive student motivation and achievement (e.g., McCombs & Quiat, in press; McCombs, 1999b). These domains of classroom practice are (1) creating a positive classroom climate and relationship with each student, (2) honoring student voice and providing individual learning challenges, (3) encouraging higher order thinking and learning skills, and (4) adapting to a variety of individual developmental differences.

The student Grades 4-8 ALCP survey contains a total of 75 items that comprise the following scales: (1) items 1-25 assess student perceptions of the frequency with which their teacher engages in the four domains of classroom practices; (2) items 26-72 assess student perceptions of their motivation in seven areas (self-efficacy, active learning strategies, effort avoidance strategies, knowledge-seeking curiosity, task mastery goals, performance-oriented goals, and work avoidance goals); and (3) items 73-75 assess student demographic variables (gender, ethnic background, current grade level).

The teacher Grades 4-8 ALCP survey contains a total of 129 items broken down into seven scales: (1) items 1-35 assess teacher beliefs in three areas (learner-centered beliefs about learners, learning, and teaching; non learner-centered beliefs about learners; and non learner-centered beliefs about learning and teaching); (2) items 36-60 assess teacher perceptions of the frequency with which their teacher engages in the four domains of classroom practices; (3) items 61-66 assess teacher self-efficacy; (4) items 67-76 assess teacher beliefs about middle adolescence (can influence, difficult stage); (5) items 77-91 assess teacher tendencies to engage in reflective self-awareness behaviors; (6) items 92-111 assess teacher autonomy support style in four areas (moderately controlling, highly controlling, moderately autonomy supportive, highly autonomy supportive; and (7) items 112-129 assess a variety of demographic teacher variables (e.g., number of years teaching gender, ethnic background, highest degree earned).

A Learner-Centered Rubric for all teacher and student variables based on national validation studies that identified the most learner-centered teachers (i.e., those teachers who consistently engaged in practices that led to the highest levels of student motivation and achievement) was applied as the test of the learner-centeredness of various intervention approaches and strategies used in each school site (McCombs & Quiat, 1999, in press). See Table 1 for a complete listing of variables and the Rubric values for each variable.

Insert Table 1 about here

Additional Data Collected

Teachers were asked to complete a data collection form on which they recorded the last report card grade of each student in their classroom, the number of absences for this school year for each student, and a subjective score ranging from 1 (rarely) to 5 (frequently) to rate their perceptions of each child's level of disruptive behavior.

Data Collection Procedures

Student class rosters were provided by each class in the participating schools to facilitate setting up student and teacher identification numbers. Students and teachers were assigned numbers and answer sheets were pre-encoded with these identification numbers to ensure the anonymity of the subjects. The teacher identification numbers allowed for them to be matched to their classes for data analysis.

Survey packets were mailed to the schools for distribution to participating teachers and classrooms. Complete instructions, teacher surveys and answer sheets, student survey and answer sheets, and a data collection form for recording classroom achievement, teacher perceptions of student disruptiveness, and attendance were included in these packets. Teachers

were asked to distribute the surveys to the students and take the teacher survey while the students completed their own version of the survey. If the teachers could not finish their surveys in the time allotted, they were asked to complete it later in the day and return it to a selected staff member at each school for collection and return to the research investigators.

All teacher and student survey forms were scanned to create student and teacher item level data for the study database. The teacher and student survey variables were computed based on the ALCP scoring templates (McCombs, 1999a) and data regarding achievement, absenteeism, and disruptiveness were entered into the database.

Results

The Role of Student Perceptions of Learner-Centered Practices in Student Motivation, Achievement, Disruptive Behavior, and Class Absences

Correlations. To determine whether or not student perceptions of learner-centered practices were related to student motivation and academic achievement, a Pearson Product-Moment correlation was conducted between these variables. Results indicated that student perceptions of the degree to which their teacher created positive relationships with them was related to positive student motivation patterns (self-efficacy, $r = .571$, $p < .01$; epistemic curiosity, $r = .231$, $p < .01$; active learning strategies, $r = .578$, $p < .01$; task mastery goals $r = .640$, $p < .01$). No significant relationship was found between student perceptions positive relationships and negative student motivation patterns, except for performance-oriented goals (effort avoidance strategies, $r = .104$, $p < .116$; performance-oriented goals, $r = .221$, $p < .01$; work avoidant strategies $r = -.046$, $p = .487$).

A similar relationship was also found between students' perceptions of their teacher honoring their voice and positive student motivation (se

.718, $p < .01$). In addition, the only significant relationship between student voice and negative student motivation was that of performance-oriented goals (effort avoidant strategies, $r = .097$, $p = .142$; performance-oriented goals, $r = .290$, $p < .01$; work avoidance goals, $r = -.006$, $p = .927$).

Next, a significant relationship was found between students' perceptions of their teacher establishing higher order thinking and positive student motivation (self-efficacy, $r = .697$, $p < .01$; epistemic curiosity, $r = .327$, $p < .01$; active learning strategies, $r = .718$, $p < .01$; task mastery goals, $r = .780$, $p < .01$). A significant relationship was also found between higher order thinking and effort avoidance strategies along with performance-oriented goals, and not work avoidance goals (effort avoidance strategies, $r = .136$, $p < .05$; performance-oriented goals, $r = .361$, $p < .01$; work avoidance goals $r = -.006$, $p = .959$).

Finally, a significant relationship was found between students' perceptions of their teacher adapting to individual differences and both positive and negative student motivation, and is approaching significance with student work avoidance goals (self-efficacy, $r = .560$, $p < .01$; epistemic curiosity, $r = .263$, $p < .01$; active learning strategies, $r = .666$, $p < .01$; effort avoidant strategies, $r = .225$, $p < .01$; task mastery goals, $r = .672$, $p < .01$; performance-oriented goals, $r = .486$, $p < .01$; work avoidance goals, $r = .122$, $p = .066$).

No significant relationship was found between student perceptions of learner-centered practices and achievement (positive relationships, $r = .150$, $p = .091$; student voice, $r = .089$, $p = .320$; higher order thinking, $p = -.003$, $p = .975$; individual differences, $r = -.022$, $p = .809$).

In order to evaluate whether student perceptions of learner-centered practices were related to student disruptive behavior and the number of class absences, a Pearson Product-Moment correlation was conducted. Results indicated that disruptive behavior was negatively associated with all four of the student classroom practice domains (positive relationships, $r = -.192$, $p < .01$; student voice, $r = -.129$, $p < .01$, higher order thinking, $r = -.130$, $p < .01$;

individual differences, $r = -.058$, $p < .05$). The only significant relationship found between student perceptions of classroom practices and number of class absences was that of honoring student voice (positive relationship, $r = -.021$, $p = .424$; student voice, $r = -.043$, $p = .096$; higher order thinking, $r = -.024$, $p = .335$; $r = -.021$, $p = .410$), however, there appears to be a negative pattern in the other three domains.

Analyses of variance. Another method used to examine the relationship between student perceptions of learner-centered practices and student motivation, achievement, class absences, and class disruptiveness was a one-way analysis of variances (ANOVA). First, a one-way ANOVAs were performed between a teacher's degree of learner-centeredness and student motivation and achievement. The teacher's degree of learner-centeredness was determined by looking at students' perceptions of how often their teacher created positive relationships in class and how often their teacher honored their students' voices. If a teacher's students felt that, in both of these domains, their teachers often to almost always performed these two practices, they were given a high learner-centered score. If the students perceived their teacher as sometimes performing these two practices, they were given a medium learner-centered score. Finally, if a teacher's students felt that, in both of these domains, their teacher sometimes to almost never performed these two practices, they were given a low learner-centered score. Results indicated that the more learner-centered a teacher was, the more positive their students' motivation patterns appeared to be. Students who had teachers with high learner-centeredness had significantly more self-efficacy ($F = 121.07$, $p < .01$), epistemic curiosity ($F = 44.84$, $p < .01$), active learning strategies ($F = 136.18$, $p < .01$), task mastery goals ($F = 180.92$, $p < .01$) and performance-oriented goals ($F = 36.49$, $p < .01$) than students who had teachers with medium and low learner-centeredness. In addition, students who had teachers with high learner-centeredness had significantly less effort avoidant strategies than students who had teachers with

medium and low learner-centeredness ($F = 16.14$, $p < .01$). Finally, students who had teachers with high learner-centeredness appeared to have less work avoidance goals than students who had teachers with medium and low learner-centeredness. This relationship was not significant ($F = 1.36$, $p = .257$). Results also indicated that the more learner-centered a teacher was, the higher their students' achievement scores tended be, however, this relationship was not significant ($F = 1.108$, $p = .330$). These results are illustrated in Figures 2-3.

Insert Figures 2-3 about here

Second, a one-way analysis of variance (ANOVA) was used to examine the differences in student motivation and achievement based on their teacher's degree of nonlearner-centeredness. A teacher's degree of nonlearner-centeredness was determined using their nonlearner-centered beliefs about learners. If a teacher reported a 3 or higher on a scale of 1 to 4, 1 being the lowest, that some students could not learn, they were given a high nonlearner-centered score. If a teacher reported between a 2.5 and a 2.9 that some students could not learn, they were given a medium nonlearner-centered score. If a teacher reported below a 2.5 that some students could not learn, they were given a low nonlearner-centered score.

Results indicated that a teacher's degree of nonlearner-centeredness had a significant impact on student achievement ($F = 8.59$, $p < .01$). Thus, it appears that the more nonlearner-centered a teacher is, the less their students will achieve.

Results also indicated that for the majority of student motivation variables, nonlearner-centered beliefs about learners had a negative impact on student motivation. Nonlearner-centered teachers appeared to have students who reported less self-efficacy ($F = 4.70$, $p < .00$), less active learning strategies ($F = 3.00$, $p = .05$), and less task mastery goals ($F = 3.44$, $p < .05$) than teachers who had medium to low nonlearner-centered beliefs about learners. In addition,

teachers with high and medium nonlearner-centered beliefs appeared to have students who had more work avoidance goals than teachers with low nonlearner-centered beliefs ($F = 3.14$, $p < .05$). Furthermore, teachers with high nonlearner-centered beliefs about learners tended to have students with more performance-oriented goals than teachers with medium and low nonlearner-centered beliefs about learners, although these results are not significant ($F = .015$, $p < .985$). Thus, it appears that on these motivation variables, nonlearner-centered beliefs about learners have a negative impact on student motivation. Results were mixed in terms of the effects of nonlearner-centered beliefs about learners on epistemic curiosity and effort avoidant strategies. Teachers with medium nonlearner-centered beliefs about learners tended to have students with higher epistemic curiosity ($F = .067$, $p = .935$) and higher effort avoidance strategies ($F = .612$, $p = .542$) than teachers with low and high nonlearner-centered beliefs about learners, however, these results were not significant. The effects of a teacher's degree of nonlearner-centeredness on student motivation and student achievement are graphed in Figures 4-5.

Insert Figures 4-5 about here

In order to evaluate whether the degree of a teacher's learner-centeredness would effect their student's disruptive behavior and the number of class absences, a one-way analysis of variance (ANOVA) was performed on these variables. The results indicated that the degree of a teacher's learner-centeredness had a significant impact on the amount of disruptive behavior their students displayed ($F = 9.22$, $p < .01$) and the number of class absences ($F = 6.55$, $p < .01$). High learner-centered teachers had students who were less disruptive and had less class absences than medium and low learner-centered teachers. Thus, it appears that the degree of a teacher's learner-centeredness has a positive impact on the amount of class disruptiveness and the number of class absences. These results are graphed in Figures 6-7.

Insert Figures 6-7 about here

Linear regressions. A multiple stepwise regression was computed to determine the specific contributions of each domain of practice to each of the motivation variables and achievement. Results indicated that the student perception variables were differentially predictive of achievement and each student motivation variable. These results are reported in Table 2. First, students' perceptions of their teacher establishing higher order thinking, creating positive relationships, and honoring student voice accounted for approximately 20% of the variance in student self-efficacy. These same three domains of practice explained 8% of the variance in epistemic curiosity. All four of the student perceptions of classroom practices accounted for 27% of variance in active learning strategies in the order of encouraging higher order thinking, honoring student voice, adapting to individual differences, and creating positive relationships. Task mastery goals were also predicted by all four domains of practice, in the order of encouraging higher order thinking, creating positive relationships, honoring student voice, and adapting to individual differences, which accounted for a total of 30% of the variance.

The domains of adapting to individual differences and creating positive relationships accounted for 3% of the variance in effort avoidant strategies. Performance-oriented goals were predicted by students' perceptions of adapting to individual differences, encouraging higher order thinking, and creating positive relationships. These three domains of practice accounted for 9% of the total variance. The domains of adapting to individual differences and creating positive relationships were most predictive of student work avoidance strategies, which accounted for 2% of the total variance. Finally, achievement was predicted by the domains of creating positive relationships, adapting to individual differences, and establishing higher order thinking, which accounted for 3% of the total variance.

Insert Table 2 about here

The Role of Teacher Beliefs, Perceptions of Learner-Centered Practices, Self-Efficacy, Reflective Self-Awareness, and Classroom Control Patterns in Student Perceptions of Learner-Centered Practices, Motivation, Achievement, Disruptiveness, and Class Absences

Correlations. To determine the relationship between teacher beliefs and student perceptions of classroom practices, student motivation, and student achievement, a Pearson Product-Moment correlation was performed between these variables. Results indicate that learner-centered beliefs are positively associated with these student variables, whereas nonlearner-centered beliefs are negatively associated with these student variables. First, the only significant results between teacher learner-centered beliefs about learners and the student variables, was that between teacher learner-centered beliefs and student self-efficacy (positive relationships, $r = .057$, $p = .392$; student voice, $r = .040$, $p = .547$; higher order thinking, $r = .024$, $p = .721$; individual differences, $r = .017$, $p = .798$; self-efficacy, $r = .146$, $p < .05$; epistemic curiosity, $r = .060$, $p = .369$; active learning strategies, $r = .082$, $p = .214$; effort avoidant strategies, $r = .008$, $p = .899$; task mastery goals, $r = .077$, $p = .244$; performance-oriented goals, $r = .051$, $p = .444$; work avoidance goals, $r = -.066$, $p = .321$; achievement, $r = -.023$, $p = .793$).

Second, results indicated that nonlearner-centered beliefs about learners were negatively associated with student perceptions of classroom practices, student motivation, and student achievement. Furthermore, this relationship was significant for higher order thinking, work avoidance goals, and achievement, and was approaching significance for positive relationships, student voice, self-efficacy, active learning strategies, and task mastery goals (positive relationships, $r = -.129$, $p = .051$; student voice, $r = -.129$, $p = .050$; higher order thinking, $r =$ -

.154, $p < .05$; individual differences, $r = -.071$, $p = .282$; self-efficacy, $r = -.125$, $p = .058$; epistemic-curiosity, $r = -.060$, $p = .369$; active learning strategies, $r = -.111$, $p = .094$; effort avoidance strategies, $r = .012$, $p = .852$; task mastery goals, $r = -.122$, $p = .066$; performance-oriented goals, $r = .030$, $p = .653$; work avoidance goals, $r = .145$, $p < .028$; achievement, $r = -.023$, $p = .793$). Third, the only significant relationship found between nonlearner-centered beliefs about learning and teaching, and student variables was that in performance-oriented goals, however, this relationship was approaching significance in work avoidance goals and achievement (positive relationships, $r = .012$, $p = .858$; student voice, $r = .058$, $p = .380$; higher order thinking, $r = .014$, $p = .828$; individual differences, $r = .086$, $p = .195$; self-efficacy, $r = .039$, $p = .559$; epistemic-curiosity, $r = .019$, $p = .778$; active learning strategies, $r = .103$, $p = .118$; effort avoidant strategies, $r = .104$, $p = .117$; task mastery goals, $r = .093$, $p = .159$; performance-oriented goals, $r = .157$, $p < .017$; work avoidance goals, $r = .121$, $p = .067$; achievement, $r = -.163$, $p = .067$).

The results also indicate that teacher perceptions' of classroom practices are positively associated with student perceptions of classroom practices, student motivation, and student achievement. First, teacher perceptions of creating positive relationships are significantly correlated with student perceptions of creating positive relationships, student perceptions of honoring student voice, and active learning strategies. In addition, the correlations between teacher perceptions of creating positive relationships and student self-efficacy, task mastery goals, and achievement are approaching significance (positive relationships $r = .166$, $p < .05$; student voice, $r = .159$, $p < .05$; higher order thinking, $r = .090$, $p = .176$; individual differences, $r = .107$, $p = .107$; self-efficacy, $r = .122$, $p = .064$; epistemic-curiosity, $r = .081$, $p = .222$; active learning strategies, $r = .135$, $p < .05$; effort avoidant strategies, $r = -.054$, $p = .416$; task mastery

goals, r = .129, p = .051; performance-oriented goals, r = .007, p = .921; work avoidance goals, r = -.100, p = .129; achievement, r = .150, p = .093).

Second, teacher perceptions of honoring student voice are significantly related to student perceptions of honoring student voice, student perceptions of adapting to individual differences, self-efficacy, and active learning strategies. Furthermore, this relationship is approaching significance in task mastery goals and performance-oriented goals (positive relationships r = .101, p = .125; student voice, r = .164, $p < .05$; higher order thinking, r = .093, p = .159; individual differences, r = .153, $p < .05$; self-efficacy, r = .135, $p < .05$; epistemic curiosity, r = -.032, p = .635; active learning strategies, r = .144, $p < .05$; effort avoidance strategies, r = .078, p = .241; task mastery goals, r = .113, p = .089; performance oriented goals, r = .114, p = .085; work avoidance goals, r = -.029, p = .663; achievement, r = .032, p = .717).

Next, teacher's perceptions of establishing higher order thinking is significantly related to all of the student perceptions of classroom practice domains, and most of the positive student motivation variables including self-efficacy, active learning strategies, and task mastery goals (positive relationships, r = .134, $p < .05$; student voice, r = .195, $p < .01$; higher order thinking, r = .137, $p < .05$; individual differences, r = .199, $p < .01$; self-efficacy, r = .160, $p < .015$; epistemic-curiosity, r = .011; p = .865; active learning strategies, r = .146, $p < .05$; task mastery goals, r = .135, $p < .041$; performance-oriented goals, r = .092, p = .166, work avoidance goals, r = -.061, p = .360; achievement, r = -.016; $p < .855$).

Finally, teachers' perceptions of adapting to individual differences are positively associated with student perceptions of classroom practices, student motivation, and student achievement. This relationship is significant in all four of the student classroom practice domains except higher order thinking, and is approaching significance in self-efficacy, active learning strategies, and task mastery goals (positive relationships, r = .146, $p < .05$; student

voice, $r = .160$, $p < .05$; higher order thinking, $r = .091$, $p < .171$; individual differences, $r = .143$, $p < .05$; self-efficacy, $r = .121$, $p = .068$; epistemic-curiosity, $r = .032$, $p = .692$; active learning strategies, $r = .114$, $p = .085$; effort avoidant strategies, $r = .043$, $p = .521$, task mastery goals, $r = .111$, $p = .092$; performance-oriented goals, $r = .093$, $p = .159$; work avoidance goals, $r = -.020$, $p = .765$; achievement, $r = .089$, $p = .318$).

Teacher self-efficacy appears to be positively associated with student perceptions of classroom practices, student motivation, and student achievement. This relationship is significant in three of the four domains of practice (positive relationships, $r = .156$, $p < .05$; student voice, $r = .166$, $p < .012$; higher order thinking, $r = .171$, $p < .01$; individual differences, $r = .109$, $p = .100$) and task mastery goals ($r = .154$, $p < .05$). In addition, this relationship is approaching significance with student self-efficacy ($r = .111$, $p = .092$). No significance was found in the relationship between teacher self-efficacy and the remaining student motivation variables and achievement (epistemic curiosity, $r = -.032$, $p = .631$; active learning strategies, $r = .103$, $p = .118$; effort avoidance strategies, $r = 021$, $p = .757$; performance-oriented goals, $r = -.004$, $p = .956$; work avoidance goals, $r = -.093$, $p = .162$; achievement, $r = .066$, $p = .460$).

Although teacher beliefs that they can influence students during middle childhood was positively associated with student perceptions of classroom practices, student motivation, and achievement, the only significant relationship found was that of student perceptions of positive relationships (positive relationships, $r = .155$, $p < .05$; student voice, $r = .096$, $p = .189$; higher order thinking, $r = .107$, $p = .143$; individual differences, $r = .124$, $p = .089$; self-efficacy, $r = .098$, $p = .181$; epistemic curiosity, $r = .131$, $p = .074$; active learning strategies, $r = .091$, $p = .214$; effort avoidance strategies, $r = .043$, $p = .557$; task mastery goals, $r = .095$, $p = .192$; performance-oriented goals, $r = .182$, $p = .012$; work avoidance goals, $r = .005$, $p = .941$; achievement, $r = -.024$, $p = .810$). Furthermore, the teacher belief that middle childhood is a

difficult stage was negatively associated with student perceptions of classroom practices, student motivation, and achievement. Most of these relationships were significant including, positive relationships ($r = -.206$, $p < .01$), student voice ($r = -.293$, $p < .01$), higher order thinking ($r = -.306$, $p < .01$), individual differences ($r = -.195$, $p < .01$), self-efficacy ($r = -.260$, $p < .01$), active learning strategies ($r = -.197$, $p = .007$), and task mastery goals ($r = -.229$, $p < .01$). In addition, the relationship between the teacher belief that middle childhood is a difficult stage and epistemic-curiosity was approaching significance ($r = -.134$, $p = .066$). The relationship between the teacher belief that middle childhood is a difficult stage and the three negative motivation variables and achievement were not significant (effort avoidant strategies, $r = .068$, $p = .356$; performance-oriented goals, $r = .009$, $p = .906$; work avoidance goals, $r = -.006$, $p = .935$; achievement, $r = -.006$, $p = .951$).

Teacher reflective self-awareness tended to be negatively associated with student perceptions of classroom practices, student motivation, and student achievement, however, these relationships were not significant (positive relationships, $r = -.018$, $p = .791$; student voice, $r = -.016$, $p = .807$; higher order thinking, $r = -.052$, $p = .436$; individual differences, $r = -.114$, $p = .089$; self-efficacy, $r = -.011$, $p = .873$; epistemic-curiosity, $r = -.006$, $p = .927$; active learning strategies, $r = -.042$, $p = .528$; effort avoidance strategies, $r = -.028$, $p = .674$; task mastery goals, $r = -.079$, $p = .238$; performance-oriented goals, $r = .016$, $p = .810$; work avoidance goals, $r = -.031$, $p = .650$; achievement, $r = -.101$, $p = .269$).

The only significant relationship between moderately controlling behavior and student variables was active learning strategies ($r = -.132$, $p < .05$). There were no significant relationships between moderately controlling behavior and the remaining student variables (positive relationships, $r = -.042$, $p = .535$; student voice, $r = -.078$, $p = .244$; higher order thinking, $r = -.026$, $p = .700$; individual differences, $r = -.045$, $p = .499$; self-efficacy, $r = -.106$, p

= .114; epistemic curiosity, r = .078, p = .243; effort avoidance strategies, r = -.032, p = .634; task mastery goals, r = -.067, p = .317; performance-oriented goals, r = .085, p = .204; work avoidance goals, r = .065, p = .329; achievement, r = -.161, p = .071). The only significant relationship between moderate autonomy supportive behavior and student variables was work avoidance goals (r = .147, p < .05). There were no significant relationships between moderately controlling behavior and the remaining student variables (positive relationships, r = -.024, p = .722; student voice, r = -.059, p = .379; higher order thinking, r = -.025, p = .715; individual differences, r = -.018, p = .792; self-efficacy, r = -.025, p = .704; epistemic-curiosity, r = .017, p = .801; active learning strategies, r = -.010, p = .885; effort avoidance strategies, r = .039, p = .559; task mastery goals, r = -.003, p = .969; performance-oriented goals, r = .056, p = .406; achievement, r = -.012, p = .890).

No significant relationships were found between highly controlling behavior and student variables (positive relationships, r = -.078, p = .241; student voice, r = -.046, p = .491; higher order thinking, r = -.076, p = .255; individual differences, r = -.089, p = .183; self-efficacy, r = -.041, p = .543; epistemic-curiosity, r = -.048, p = .474; active learning strategies, r = -.050, p = .453; effort avoidance strategies, r = .031, p = .638; task mastery goals, r = -.085, p = .203; performance-oriented goals, r = -.105, p = .116; work avoidance goals, achievement, r = -.130, p = .051), or high autonomy supportive behavior and student variables (positive relationships, r = .017, p = .798; student voice, r = -.042, p = .533; higher order thinking, r = -.041, p = .540; individual differences, r = -.096, p = .153; self-efficacy, r = -.108, p = .109; epistemic-curiosity, r = .085, p = .204; active learning strategies, r = -.116, p = .084; effort avoidance strategies, r = -.095, p = .157; task mastery goals, r = -.093, p = .167; performance-oriented goals, r = .-.127, p = .057; work avoidance goals, r = -.033, p = .623; achievement, r = .020, p = .822).

Linear regressions. A stepwise multiple regression was performed in order to determine which teacher variables contributed most to student perceptions of classroom practices, student motivation, and achievement. These results appear in Table 3. Teacher variables were differentially predictive of student perceptions of classroom practices. Students' perceptions of creating positive relationships were predicted by teacher beliefs that middle childhood is a difficult stage, teacher beliefs that they can influence students during middle childhood, and highly controlling behavior. These variables accounted of 17% of the total variance. These three variables also contributed to students' perceptions establishing higher order thinking, accounting for 20% of the total variance.

Students' perceptions of honoring student voice were predicted by the variables: teacher beliefs that middle childhood is a difficult stage, teacher beliefs that they can influence students during middle childhood, teacher perceptions of adapting to individual differences, and highly controlling behavior, which accounted for 21% of the variance. Finally, students' perceptions of adapting to individual differences were predicted by five teacher variables, (higher order thinking, reflective self-awareness, teacher beliefs that middle childhood is a difficult stage, teacher beliefs that they can influence students during middle childhood, and highly controlling behavior). These five teacher variables accounted for 20% of the total variance. Thus, it appears that teacher beliefs that middle childhood is a difficult stage is the most predictive variable in students' perceptions of classroom practices, although this is not the only variable that predicts these domains.

The results indicated that teacher variables were also differentially predictive of student motivation. The three teacher variables that accounted for student self-efficacy were teacher beliefs that middle childhood is a difficult stage, teacher perceptions of adapting to individual differences, and teacher beliefs that they can influence students during middle childhood. These

three variables accounted for 15% of the variance in student self-efficacy. The three teacher variables that accounted for epistemic curiosity were nonlearner-centered beliefs about learners, teacher beliefs that they can influence students during middle childhood, and teacher beliefs that middle childhood is a difficult stage. These three variables accounted for 10% of the variance in epistemic curiosity. Thirteen percent of the variance in active learning strategies was accounted for by highly controlling behavior, teacher perceptions of creating positive relationships, and teacher beliefs that middle childhood is a difficult stage.

The only teacher variable that contributed to effort avoidance strategies was nonlearner-centered beliefs about learning and teaching, which accounted for 3% of the total variance. Task mastery goals were predicted by four teacher variables (teacher beliefs that middle childhood is a difficult stage, teacher beliefs that they can influence middle childhood, highly controlling behavior, and teacher perceptions of creating positive relationships). These four variables accounted for 15% of the variance in task mastery goals. Performance-oriented goals were predicted by the teacher variables nonlearner-centered beliefs about learning and teaching, high autonomy supportive behavior, and teacher beliefs that they can influence students during middle childhood. These three variables accounted for 8% of the variance in performance-oriented goals. The two teacher variables that contributed to work avoidance goals were nonlearner-centered beliefs about learners and highly controlling behavior, accounting for 2% of the variance in work avoidance goals.

Finally, teacher reflective self-awareness and teacher perceptions of adapting to individual differences accounted for 10% of the variance in student achievement.

Insert Table 3 about here

Discussion

As reported earlier, youth feel alone, alienated and disconnected. In addition, these feelings of alienation have been linked to such youth issues as school dropout, school violence, and delinquent behaviors. In the current context of rising youth violence, armed with the understanding that youth need to feel connected, supported, cared about as well as to have some voice – new systems must be built based on research-validated principles to meet these needs. The results from this study illustrate that research-validated learner-centered principles do help in increasing student motivation and achievement, and decreasing class absences and disruptive behaviors. First, student perceptions of how their teachers interact with them (e.g. care about them, honor their voice, establish higher order thinking skills, adapt to their individual differences) are positively associated with student motivation and achievement, and negatively associated with student disruptive behavior. In addition, the degree to which students perceive their teacher to be learner-centered has a impact on their motivation to learn, their willingness to attend class and avoid disruptive behaviors, and in turn, their achievement. For instance, the more learner-centered a student perceived their teacher to be (e.g. made an effort to get to know him/her personally), the more positive that student's motivation was in class. These students reported more self-efficacy, more interest in class, more active learning strategies, and more intrinsic learning goals than students who perceived their teacher to be less learner-centered. Furthermore, the more learner-centered a student perceived their teacher to be, the less disruptive they were. Finally, students who perceived their teachers to create a positive, personal domain in class achieved more than students who did not feel like their teachers were creating this personal domain in class. On the flip side, non-learner centered teachers (e.g. teachers who believe that not all of their students can learn) seemed to have detrimental effects on their

students motivation and achievement. Students can sense when their teacher does not believe in them and, as these results illustrate, are less motivated to learn and achieve less.

Second, all four of the domains of practice (e.g. creating positive relationships, honoring student voice, facilitating critical thinking and learning skills, adapting to individual differences) appear to be important in student motivation and achievement. Whereas creating positive relationships appear more important in deterring negative student motivational patterns (e.g. effort avoidance strategies, performance-oriented goals, work avoidance goals), facilitating higher order thinking appears to be the most important for promoting positive student motivational patterns (e.g. self-efficacy, epistemic-curiosity, active learning strategies, task mastery goals). In addition, more domains of practice seem to contribute to positive motivational patterns than negative motivational patterns. All four domains of practice contribute to active learning strategies and task mastery goals, and three of the four domains of practice (higher order thinking, positive relationships, student voice) contribute to self-efficacy, epistemic-curiosity, and achievement. In contrast, only two domains of practice contribute to negative motivational patterns (individual differences, positive relationships). This suggests that all of the students' perceptions of their teacher's learner-centered practices are important in establishing positive motivational patterns.

Third, although teacher perceptions of how they interact with their students appear to be positively associated with student motivation and achievement, these perceptions have less of an impact than students' perceptions of their teacher's interaction. In addition, teacher nonlearner-centered beliefs about learners (e.g. some students simply cannot learn) were more related to student motivation and achievement than teacher learner-centered beliefs about learners (e.g. every student has the ability to learn), and teacher beliefs that middle childhood is a difficult stage were more related to student motivation and achievement than teacher beliefs that they can

have an influence on children during middle childhood. Thus, it appears that negative teacher beliefs are more strongly associated with student motivation and achievement than positive teacher beliefs. Furthermore, this relationship appears to be negative, so if teachers believe that their students cannot be influenced during this stage of their development, students show less motivation in class and achieve at lower levels.

Finally, all the teacher variables play a role in determining student perceptions of classroom practices, student motivation, and student achievement. Teacher beliefs that middle childhood is a difficult stage seemed to have the most impact on student perceptions of creating positive relationships, student voice, and higher order thinking, although, this is not the only variable that predicted these domains. The belief that teachers can influence students during middle childhood tended to be the second most predictive factor in students' perceptions of these three classroom practices. Teacher beliefs, both negative and positive, also appear to predict, at some level, most of the student motivation variables. This suggests that teacher beliefs about learners have a very strong impact on student perceptions and student motivation.

Implications for Future Research and Practice

Both prior research and the current study support the value of learner-centered practices for enhancing academic and non-academic outcomes. Furthermore, this study illustrates that these benefits extend to outcomes that may be related to student alienation (school attendance) and aggression (disruptive behaviors). Although further research is needed to confirm these relationships with other indicators of alienation and violence, this study provides a promising start in demonstrating the potential benefits in these areas when students are exposed to practices that address their personal and learning needs (positive personal relationships, voice in their own learning process, support for higher order thinking and learning).

Next, researchers need to examine what would be required for educators at all levels of our system, Pre-k through college, to consider shifting practices in a more learner-centered direction. A critical first step to this process, discovered through work with large school systems and higher education institutions, is for people involved with the teaching and learning process in those systems to have an opportunity to "change their minds" – to shift current beliefs and assumptions about learners, learning, and teaching such that they are more consistent with the knowledge base as represented by the APA (1997) *Principles*.

Shifting Beliefs and Assumptions About Learners, Learning, and Teaching

Throughout history, all major changes or paradigm shifts have required a transformation in thinking, seeing, or interpreting reality. In this current era of educational reform, educators are being asked to adopt thinking that holds that "all students can learn" and to see education as a "shared responsibility" among all constituencies – students, teachers, administrators, parents, and community members. Educators are also being asked to confront old models and beliefs about how we learn and how best to promote the learning process. In any time of significant change, people are forced to confront old beliefs and assumptions, and to challenge themselves to revise these views based on evidence that a change is needed. For this process to be successful, however, people need to know why such a shift is needed, what the shift entails, and how to make the shift.

New learner-centered professional development models for teachers focus on examining beliefs, empowerment, teacher responsibility for their own growth, teachers as leaders, and development of higher-order thinking and personal reflection skills (e.g., Darling-Hammond, 1996; Fullan, 1995; McCombs, 1997). A key to teachers' abilities to accept and implement these learner-centered models is support in the form of self-assessment tools for becoming more aware of their beliefs, practices, and the impact of these practices on students. Information from

teachers' self-assessments can then be used by teachers to identify – in a non-threatening and non-judgmental context – the changes in practice that are needed to better serve the learning needs of all students. In this way, teachers can begin to take responsibility for developing their own professional development plans.

Implementing Tools for Self-Assessment and Reflection

A number of researchers are creating instruments to help teachers at all levels of the educational system (K-16) look at their own and their students' perceptions of their learning experiences. To date, however, these tools are not widely available in teacher preparation programs and are not consistently used in school improvement models and practices. Changes in evaluation procedures are occurring in teacher education, however, and current approaches support teacher growth with learning opportunities that (a) encourage reflection, critical thinking, and dialogue and (b) allow teachers to examine educational theories and practices in light of their beliefs and experiences.

For teachers to change their beliefs to be compatible with more learner-centered and constructivist practices, however, they need to be engaged in reflective processes that help them become clearer about the gap between what they are accomplishing and what needs to be accomplished. Reflection is defined by Loughran (1996) as a recapturing of experience in which the person thinks about it, mulls it over, and evaluates it. Thus, Loughran argues that reflection helps develop the habits, skills, and attitudes necessary for teachers' self-directed growth. It is also a learning process that can lead to change in beliefs and practices.

The development of a set of self-assessment and reflection tools for K-16 teachers (the Assessment of Learner-Centered Practices, ALCP) in the form of surveys for teachers, students, and administrators, combines aspects of these approaches (McCombs & Lauer, 1997, 1998; McCombs & Whisler, 1997). The focus, however, is on identifying teacher beliefs and

discrepancies between teacher and student perspectives of practices that can enhance student motivation and achievement – as a tool to assist teachers reflect on and change practices as well as identify personalized staff development needs.

What was particularly important to our research and development efforts, such as the study described here, was being able to validly and reliably assess differences in teacher and student perceptions of classroom practices. Our research (McCombs & Lauer, 1997, 1998; McCombs & Whisler, 1997; McCombs & Quiat, in press) has looked at the impact of teacher beliefs on their perceptions of their classroom practices as well as how teacher perceptions of practice differ from student perceptions of these practices. In a large-scale study of teachers and students we confirmed our hypothesis about the importance – for student motivation, learning, and achievement – of those beliefs and practices that are consistent with the research on learners and learning. We also found that teachers who are more learner-centered are more successful in engaging all students in an effective learning process, and are, themselves, more effective learners and happier with their jobs (cf, Krudwig, 2000).

Furthermore, teachers report that the process of self-assessment and reflection – particularly about discrepancies between their own and their individual students' experiences of classroom practices – helps them identify areas in which they might change their practices to be more effective in reaching more students. This is an important finding that relates to the "how" of transformation. That is, by helping teachers and others engage in a process of self-assessment and reflection – particularly about the impact of their beliefs and practices on individual students and their learning and motivation – a respectful and non-judgmental impetus to change is provided. Combining the opportunity for teacher self-assessment of and reflection on their beliefs and practices (and the impact of these practices on individual students) with skill training

and conversations and dialogue about how to create learner-centered K-16 schools and classrooms can help make the transformation complete.

As with the current study, results from prior research with the ALCP teacher and student surveys at both the secondary and postsecondary levels have confirmed that student perceptions of their teacher's instructional practices are significantly related to their motivation, learning, and achievement, and teacher perceptions of instructional practices are not as significantly related to student motivation and achievement but as teachers become more learner-centered, the relationships become stronger. At all levels of our educational system, teachers and instructors can be helped to improve instructional practices and change toward more learner-centered practices by attending to what students are perceiving and spending more time creating positive climates and relationships. These critical connections are important to personal and system learning and change and particularly important when dealing with the increasing number of Generation Y youth who are feeling alienated and angry.

References

APA Work Group of the Board of Educational Affairs (1997, November). *Learner-centered psychological principles: A framework for school reform and redesign.* Washington, DC: American Psychological Association.

APA Task Force on Psychology in Education (1993, January). *Learner-centered psychological principles: Guidelines for school redesign and reform.* Washington, DC: American Psychological Association and Mid-Continent Regional Educational Laboratory.

Astor, R. A. (1998). Moral reasoning about school violence: Informational assumptions about harm within school sub-contexts. *Educational Psychologist, 33*(4), 207-221.

Astor, R. A., Meyer, B. A., & Behre, W. J. (1999). Unowned places and times: Maps and interviews about violence in high schools. *American Educational Research Journal, 36*(1), 3-42.

Brendtro, L. K. (1999, June). *Tools for reclaiming at-risk youth.* Keynote presentation at the 8th Annual Rocky Mountain Regional Conference in Violence Prevention in Schools and Communities, Denver.

Brendtro, L. K., Brokenleg, M., & VanBockern, S. (1992). *Reclaiming youth at risk: Our hope for the future.* Bloomington, IN: National Educational Service.

Daniels, D. H., Kalkman, D. L., & McCombs, B. L. (in press). Young children's perspectives on learning and teacher practices in different classroom contexts: Implications for motivation. *Early Education and Development.*

Darling-Hammond, L. (1996). The quiet revolution: Rethinking teacher development. *Educational Leadership, 53*(6), 4-10.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation. Vol. 38. Perspectives on motivation*. Lincoln, NE: University of Nebraska Press.

DuFour, R. (1999). Living with paradox. *Professional Development Newsletter*, Fall, pages 1-2. . Alexandria, VA: Association for Supervision and Curriculum Development.

Fullan, M. G. (1995). Turning systemic thinking on its head. *Phi Delta Kappan*, 77(6), 420-423.

Glasser, W. (1990). *The quality school: Managing students without coercion.* New York: Harper Collins, Perennial Libarary.

Glasser, W. (1994). Foreword. In B. Greene (Ed.), *New paradigms for creating quality schools* (p. iv). Chapel Hill, NC: New View Publications.

Harper, D. (1997, May). *Generation Why First annual report.* Washington, DC: U.S. Department of Education.

Harper, D. (1998, May). *Generation* www.Y: *Second annual report.* Washington, DC: U.S. Department of Education.

Harter, S., (1996). Teacher and classmate influences on scholastic motivation, self-esteem, and level of voice in adolescents. In J. Juvonen and K.R. Wentzel (Eds.), *Social motivation: Understanding children's school adjustment.* Cambridge: University Press.

Kenney, D. J., & Watson, T. S. (1998). *Crime in the Schools: Reducing fear and disorder with student problem solving.* Washington, DC: Police Executive Research Forum.

Krudwig, K. M. (2000, April). *Relating teachers' pedagogical beliefs to their classroom actions.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Lauer, P. A., McCombs, B. L., & Pierce, J. W. (1998, July). Self-assessment and reflection tools for enhancing learner-centered practices in higher education: Validation data and their implications. Paper presented at the 23rd International Conference on Improving University Teaching, Dublin.

Loughran, J. (1996). *Developing reflective practice: Learning about teaching and learning through modeling.* London: Falmer Press.

McCombs, B. L. (1995). Putting the learner and learning in learner-centered classrooms: The learner-centered model as a framework. *Michigan ASCD Focus, 17(1), Special Issue, On the Learner, Learning and the Learner-Centered Classroom.* Pp. 7-12.

McCombs, B. L. (1997). Self-assessment and reflection: Tools for promoting teacher changes toward learner-centered practices. *NASSP Bulletin, 81*(587), 1-14.

McCombs, B. L. (1998). Integrating metacognition, affect, and motivation in improving teacher education. In N. Lambert & B. L. McCombs (Eds).). *How students learn: Reforming schools through learner-centered education.* Washington, DC: APA Books.

McCombs, B. L. (1999a). The Assessment of Learner-Centered Practices (ALCP): Tools for Teacher Reflection, Learning, and Change. Denver, CO: University of Denver Research Institute.

McCombs, B. L. (1999b). What role does perceptual psychology play in educational reform today? In H. J. Freiberg (Ed.), *Perceiving, behaving, becoming: Lessons learned.* Alexandria, VA: Association for Supervision and Curriculum Development.

McCombs, B. L., & Lauer, P. A. (1997). Development and validation of the Learner-Centered Battery: Self-Assessment tools for teacher reflection and professional development. *The Professional Educator, 20*(1), 1-21.

McCombs, B. L., & Lauer, P. A. (1998, July). *The learner-centered model of seamless professional development: Implications for practice and policy changes in higher education.* Paper presented at the 23rd International Conference on Improving University Teaching, Dublin.

McCombs, B. L., & Quiat, M. A. (1999) *Development and validation of norms and rubrics for the Grades K-5 Assessment of Learner-Centered Practices (ALCP) surveys.* University of Denver Research Institute. Unpublished manuscript.

McCombs, B. L., & Whisler, J. S. (1997). *The learner-centered classroom and school: Strategies for enhancing student motivation and achievement.* San Francisco: Jossey-Bass Publishers.

Noguera, P. A. (1995). Preventing and producing violence: A critical analysis of responses to school violence. *Harvard Educational Review, 65,* 189-212.

Perry, K. E., & Weinstein, R. S. (1998). The social context of early schooling and children's school adjustment. *Educational Psychologist, 33*(4), 177-194.Rogers, C., & Freiberg, H. J. (1994). *Freedom to learn* (3rd Ed.). New York: Merrill.

Rogers, C., & Freiberg, H. J. (1994). *Freedom to learn* (3rd Ed.). New York: Merrill.

Rosenberg, S. L., McKeon, L. M., & Dinero, T. E. (1999). Positive peer solutions: One answer for the rejected student. *Phi Delta Kappan, 18*(2), 114-118.

Ryan, R. M. (1992). A systemic view of the role of motivation in development. In R. Dienstbier (Ed.), *Nebraska symposium on motivation: Vol. 40. Developmental perspectives on motivation.* Lincoln, NE: University of Nebraska Press.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63*(3), 397-427.

Vatterott, C. (1995). Student-focused instruction: Balancing limits with freedom. *Middle School Journal, 27*(11), 28-38.

Wentzel, K. R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology, 90*(2), 202-209.

Wentzel, K. R. & Wigfield, A. (1998). Academic and social motivational influences on students' academic performance. *Educational Psychology Review, 10,* 155-175.

Wheatley, M. J. (1999, July). *Reclaiming hope: The new story is ours to tell.* Summer Institute, University of Utah.

Table 1
VARIABLES MEASURED IN THE ASSESSMENT OF LEARNER-CENTERED PRACTICES (ALCP) SURVEYS*

Teacher Variables	Explanation (Definition or Example)	Grades 4-5 LC Rubric**
Teacher Beliefs		
Learner-centered beliefs about learners, learning, & teaching.	I believe that just listening to students in a caring way helps them solve their own problems.	High≥3.3
Nonlearner-centered beliefs about learners	There are some students whose personal lives are so dysfunctional that they simply do not have the capability to learn.	Low<1.9
Nonlearner-centered beliefs about learning and teaching	I can't allow myself to make mistakes with my students.	Low<2.5
Teacher Perceptions of Classroom Practices		
Creates positive interpersonal relationships/climate	I demonstrate to each student that I like him/her as an individual.	High≥3.6
Honors student voice, provides individual learning challenges	I encourage students to express their own unique thoughts and beliefs	High≥3.5
Encourages higher order thinking and self-regulation	I teach children a variety of learning strategies.	High≥3.3
Adapts to individual developmental differences	I get to know each student's unique background.	High≥3.3
Teacher Self-Efficacy	Beliefs in competency to be an effective teacher and facilitator of learning for all students.	High≥3.4
Reflective Self-Awareness	Degree to which teacher is aware of the influence of thoughts and feelings on actions and tends to analyze and reflect on personal or professional experience	High≥3.1
Autonomy Support:	Degree to which teacher believes learning is best supported by:	
Moderately Controlling	Moderate teacher control and direction of learning.	Higher≥3.0
Highly Controlling	High teacher control and direction of learning.	Lower<3.4
Moderately Autonomy Supportive	Moderate level of support for student choice and personal control over learning.	Lower<2.5
Highly Autonomy Supportive	High level of support for student choice and personal control over learning.	Higher≥2.9
Student Variables	**Explanation (Definition or Example)**	**LC Rubric**
Student Perceptions of Classroom Practices		
Creates positive interpersonal relationships/climate	My teacher likes me.	High≥ 3.3
Honors student voice, provides individual learning challenges	My teacher listens carefully to what I am saying.	High≥ 3.0
Encourages higher order thinking and self-regulation	My teacher helps me remember what I learn.	High≥ 3.0
Adapts to individual developmental differences	My teacher asks me what I do when I'm not in school.	High≥ 2.6
Differences Between Student and Teacher Perceptions of Classroom Practices		Low≥0 to -.7
Creates positive interpersonal relationships/climate	Student's ratings of teacher's positive relationships minus teacher's rating.	Low>-.3
Honors student voice, provides individual learning challenges	Student's ratings of teacher's honoring student voice minus teacher's rating.	Low>-.6
Encourages higher order thinking and self-regulation	Student's ratings of teacher's encouraging higher order thinking minus teacher's rating.	Low≥ -.3
Adapts to individual developmental differences	Student's ratings of teacher's adaptation to individual differences minus teacher's rating.	Low>-.7
Student Learning and Motivation Variables		
Self Efficacy	Beliefs in competency to learn and achieve.	High>3.7
State Epistemic Curiosity	Knowledge -seeking curiosity in learning.	High ≥3.2
Active Learning Strategies	Strategies directed at being actively engaged while learning.	High≥3.2
Effort Avoidance Strategies	Strategies directed at avoiding effort while learning.	Low<1.9
Task Mastery Goals	Intrinsic motivational orientation directed to learning and mastering task goals.	High≥3.6
Performance Oriented Goals	Extrinsic motivational orientation to achieve high grades or scores rather than learn.	Low<3.0
Work Avoidance Goals	Motivational orientation to avoid assignments and other work involved in learning.	Low<2.2
Achievement Scores	Teacher-assigned classroom achievement score on a scale from 0 to 100.	High>86.2

* All variables have scores ranging from 1-4 except Achievement Scores which range from 0 to 100.

** LC Rubric based on scores from classrooms in prior validation sample (McCombs & Quiat, in preparation) that had student achievement and motivation.

Table 2
Summary of Multiple Stepwise Regression Analyses with Domains of Practice on Student Motivation and Achievement

Variable	B	SE B	Beta	RSquared	Sig.
Self-efficacy					
Step 1- Higher order thinking	.237	.018	.259	.170	.000
Step 2- Positive relationships	.129	.016	.164	.193	.000
Step 3- Student voice	.073	.019	.077	.196	.000
Epistemic-curiosity					
Step 1- Higher order thinking	.143	.018	.166	.068	.000
Step 2- Positive relationships	.065	.016	.088	.075	.000
Step 3- Student voice	.053	.019	.060	.076	.006
Active learning strategies					
Step 1- Higher order thinking	.247	.017	.278	.233	.000
Step 2- Student voice	.144	.018	.157	.263	.000
Step 3- Individual differences	.099	.016	.112	.271	.000
Step 4- Positive relationships	.043	.015	.057	.273	.003
Effort avoidance strategies					
Step 1- Individual differences	.185	.018	.196	.025	.000
Step 2- Positive relationships	-.052	.015	-.064	.028	.001
Task mastery goals					
Step 1- Higher order thinking	.316	.019	.321	.268	.000
Step 2- Positive relationships	.123	.016	.146	.294	.000
Step 3- Student voice	.108	.020	.106	.301	.000
Step 4- Individual differences	.058	.017	.059	.303	.001
Performance-oriented goals					
Step 1- Individual differences	.228	.020	.219	.073	.000
Step 2- Higher order thinking	.160	.002	.153	.082	.000
Step 3- Positive relationships	-.065	.018	-.073	.085	.000
Work avoidance goals					
Step 1- Individual differences	.184	.018	.187	.016	.000
Step 2- Positive relationships	-.092	.016	-.109	.024	.000
Achievement					
Step 1- Positive relationships	2.61	.466	.156	.014	.000
Step 2- Individual differences	-3.07	.559	-.149	.024	.000
Step 3- Higher order thinking	1.53	.569	.077	.027	.007

Table 3

Summary of Multiple Stepwise Regression Analyses with Teacher Variables on Student Perceptions of Classroom Practices, Student Motivation and Achievement

Variable	B	SE B	Beta	RSquared	Sig.
Positive relationships					
Step 1- Difficult stage	-.309	.064	-.372	.041	.000
Step 2- Teachers can influence	.377	.077	.382	.147	.000
Step 3- Highly controlling	-.149	.062	-.165	.174	.018
Student Voice					
Step 1- Difficult stage	-.310	.052	-.451	.085	.000
Step 2- Teachers can influence	.233	.065	.285	.165	.000
Step 3- Individual differences	.089	.040	.160	.188	.027
Step 4- Highly controlling	-.112	.051	-.151	.210	.027
Higher order thinking					
Step 1- Difficult stage	-.335	.057	-.448	.088	.000
Step 2- Teachers can influence	.308	.067	.348	.174	.000
Step 3- Highly controlling	-.148	.055	-.182	.207	.008
Individual differences					
Step 1- Higher order thinking	.149	.049	.235	.038	.003
Step 2- Reflective self-awareness	-.211	.066	-.243	.082	.002
Step 3- Difficult stage	-.235	.060	-.302	.114	.000
Step 4- Teachers can influence	.290	.075	.314	.176	.000
Step 5- Highly controlling	-.140	.058	.166	.203	.016
Self-efficacy					
Step 1- Difficult stage	-.202	.039	-.406	.076	.000
Step 2- Individual differences	.073	.030	.180	.126	.016
Step 3- Teachers can influence	.115	.048	.195	.154	.017
Epistemic curiosity					
Step 1- Nonlearner-centered beliefs about learners	-.053	.025	-.158	.037	.032
Step 2- Teachers can influence	.114	.037	.248	.059	.003 .009
Step 3- Difficult stage	-.085	.032	-.220	.080	
Active learning strategies					
Step 1- Highly controlling	-.098	.037	-.187	.036	.009
Step 2- Positive relationships	.125	.037	.245	.073	.001
Step 3- Difficult stage	-.115	.035	-.238	.126	.001
Effort avoidance strategies					
Step 1- Nonlearner-centered beliefs about learning and teaching	.062	.029	.158	.158	.035
Task mastery goals					
Step 1- Difficult stage	-.203	.046	-.351	.053	
Step 2- Teachers can influence	.139	.058	.203	.102	.000
Step 3- Highly controlling	-.113	.044	-.179	.134	.018
Step 4- Positive relationships	.094	.047	.153	.153	.011 .049

Performance-oriented goals					
Step 1- Nonlearner-centered beliefs about learning and teaching	-.081	.039	.154	.027	.038
Step 2- Highly autonomy supportive	-.116	.046	-.190	.051	.011
Step 3- Teachers can influence	.124	.054	.171	.078	.024
Work avoidance goals					
Step 1- Nonlearner-centered beliefs about learners	.065	.030	.153	.153	.033
Step 2- Highly controlling	-.076	.038	-.147	.212	.048
Achievement					
Step 1- Reflective self-awareness	-2.30	1.71	-.360	.043	.003
Step 2- Individual differences	3.20	1.27	.292	.104	.014

A LEARNER-CENTERED MODEL OF RELATIONS BETWEEN TEACHER BELIEFS, TEACHER PRACTICES, AND STUDENT OUTCOMES

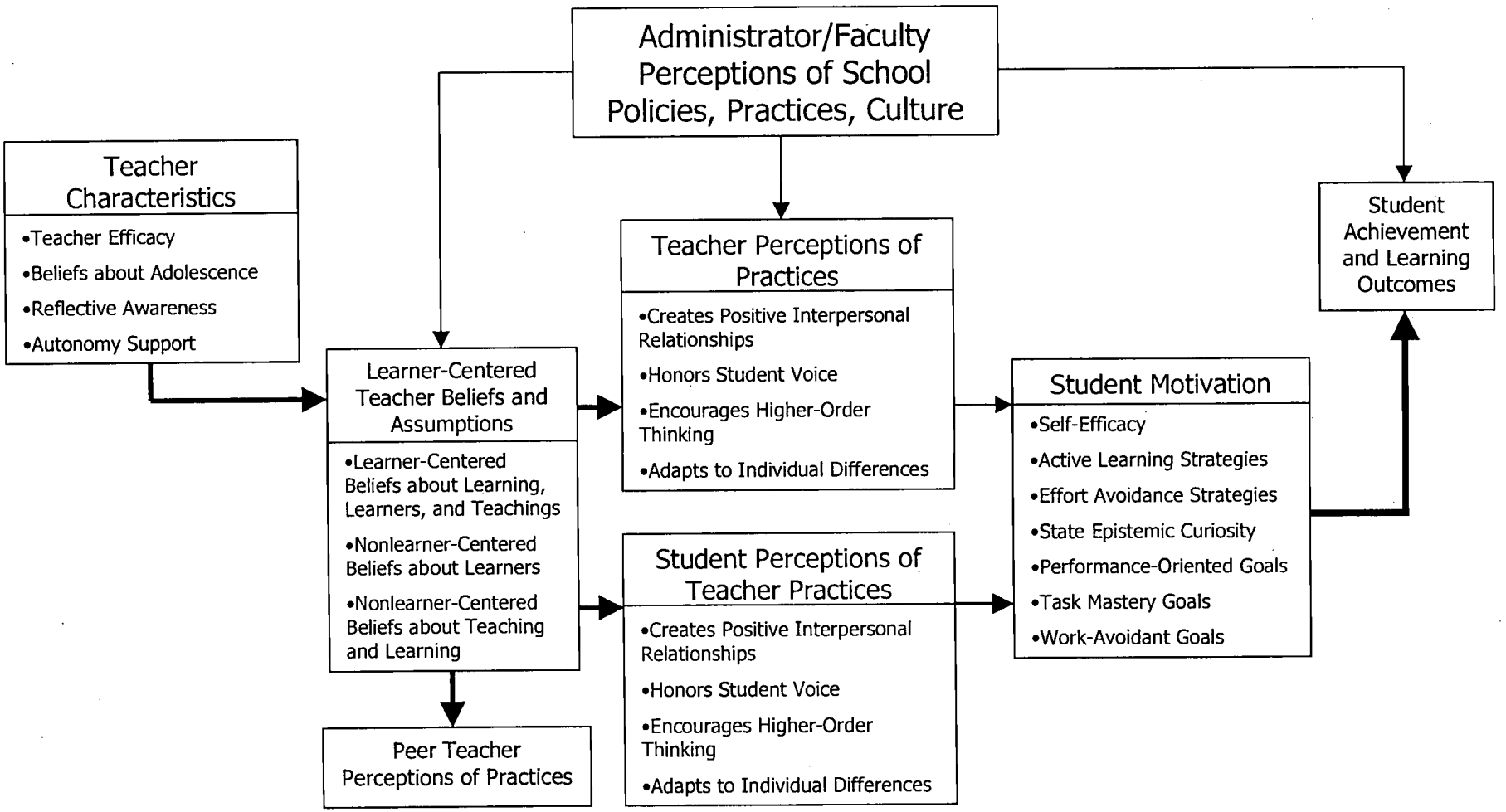


Figure 2
Differences in Student Motivation based on Student Perceptions of their Teacher's Degree of Learner-Centeredness

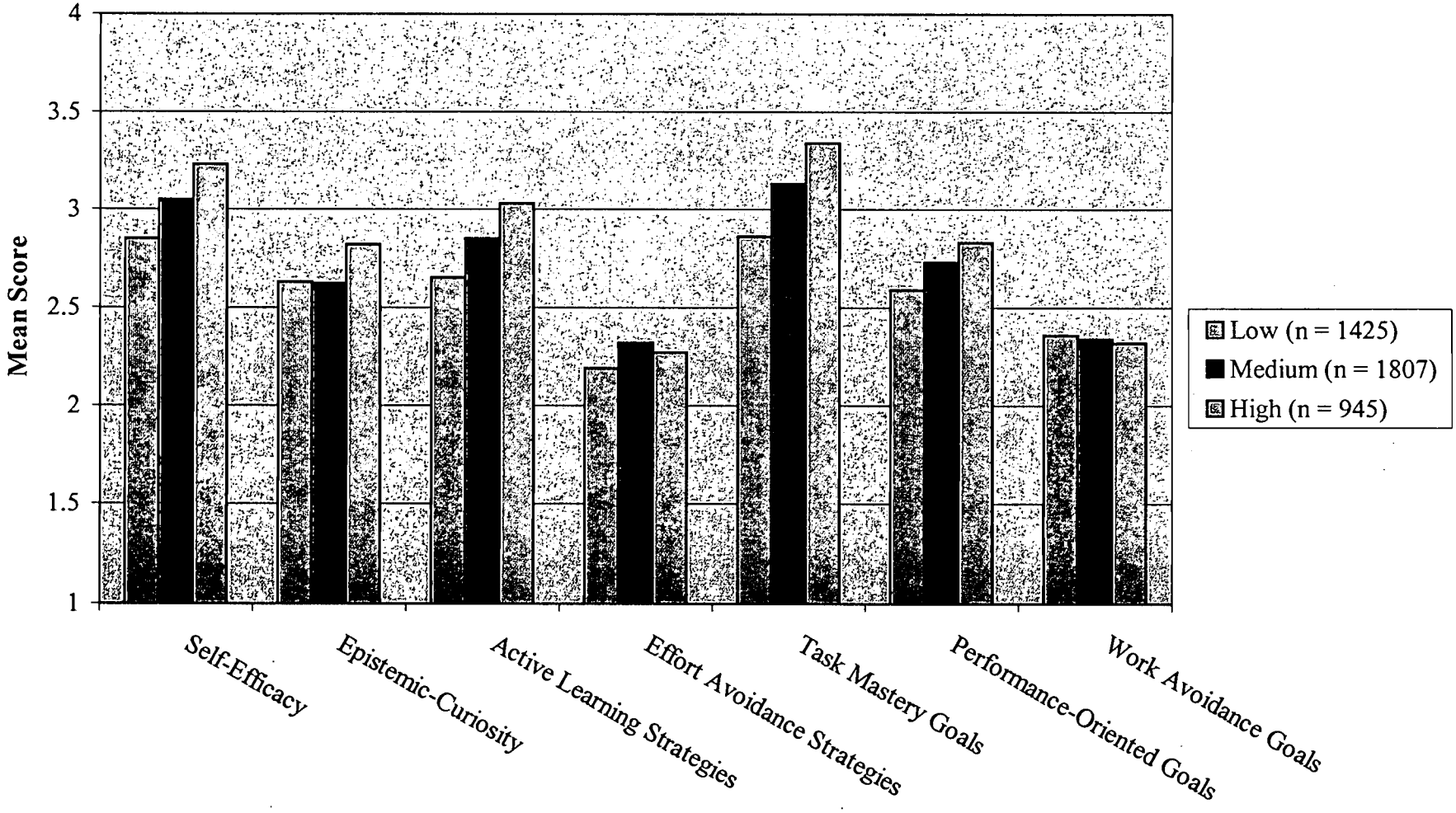


Figure 3
Differences in Student Achievement based on Student Perceptions of their Teacher's Degree of Learner-Centeredness

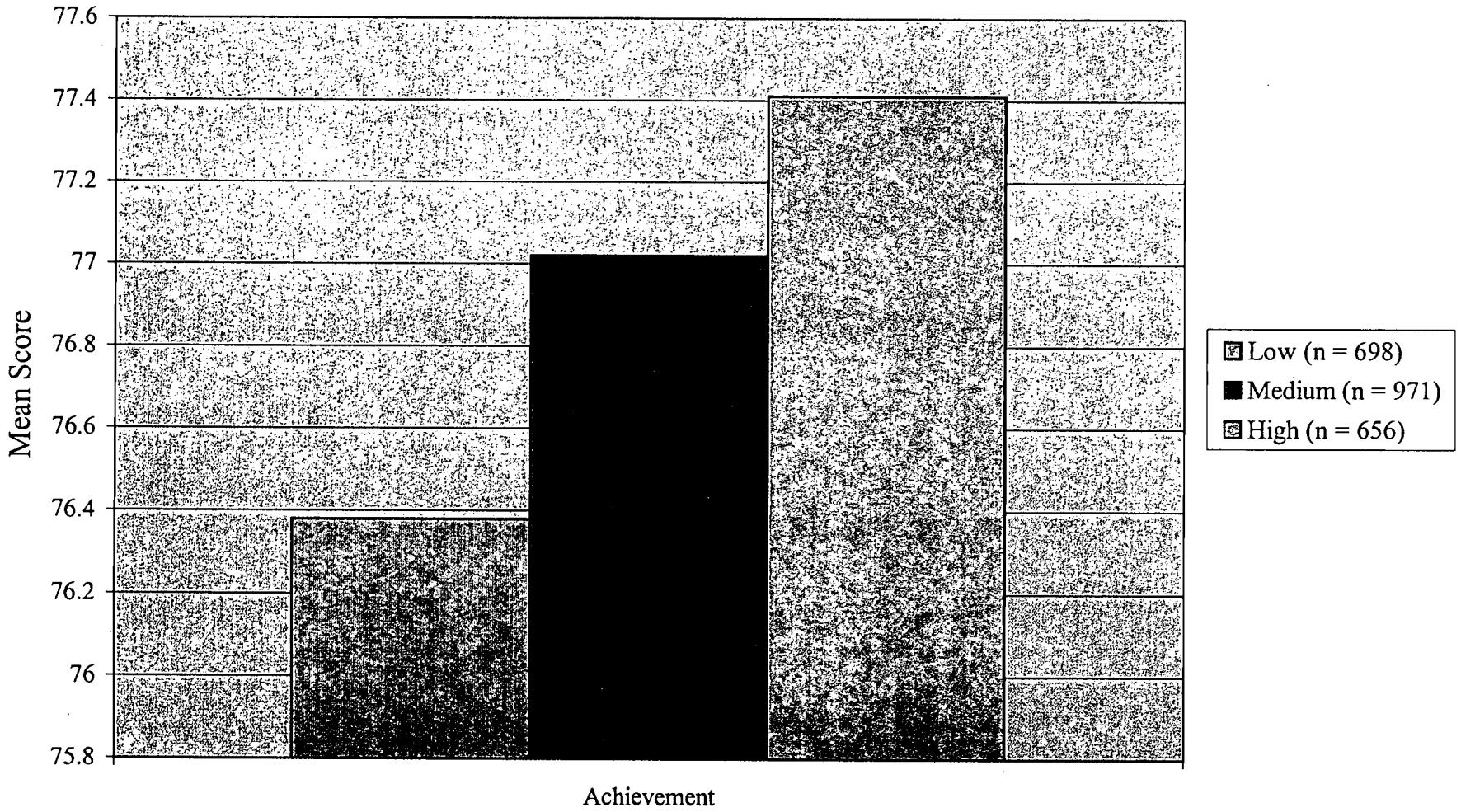


Figure 4
Differences in Student Motivation based on Student Perceptions of their Teacher's Degree of Nonlearner-Centeredness

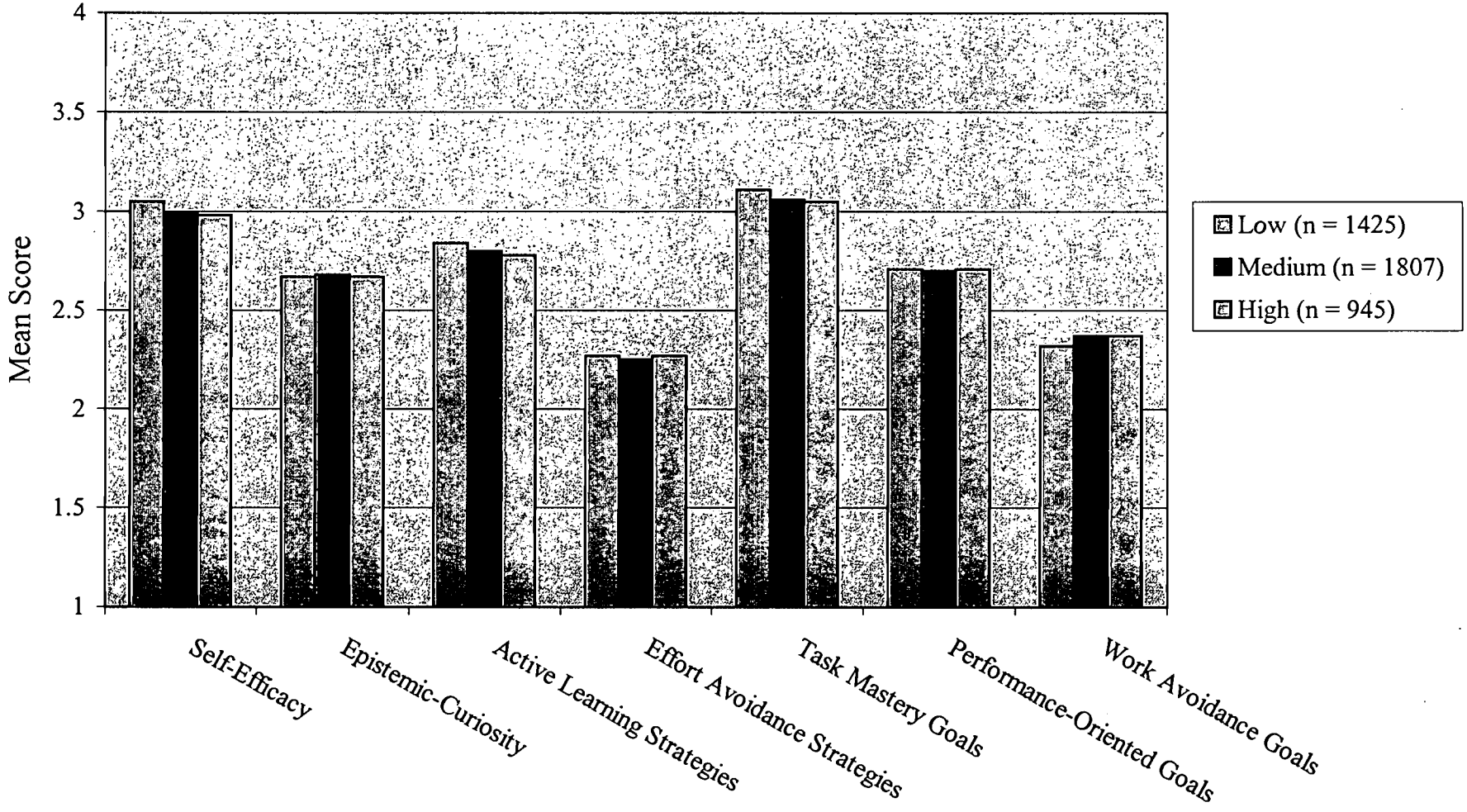


Figure 5
Differences in Student Achievement based on Student Perceptions of their Teacher's Degree of Nonlearner-Centeredness

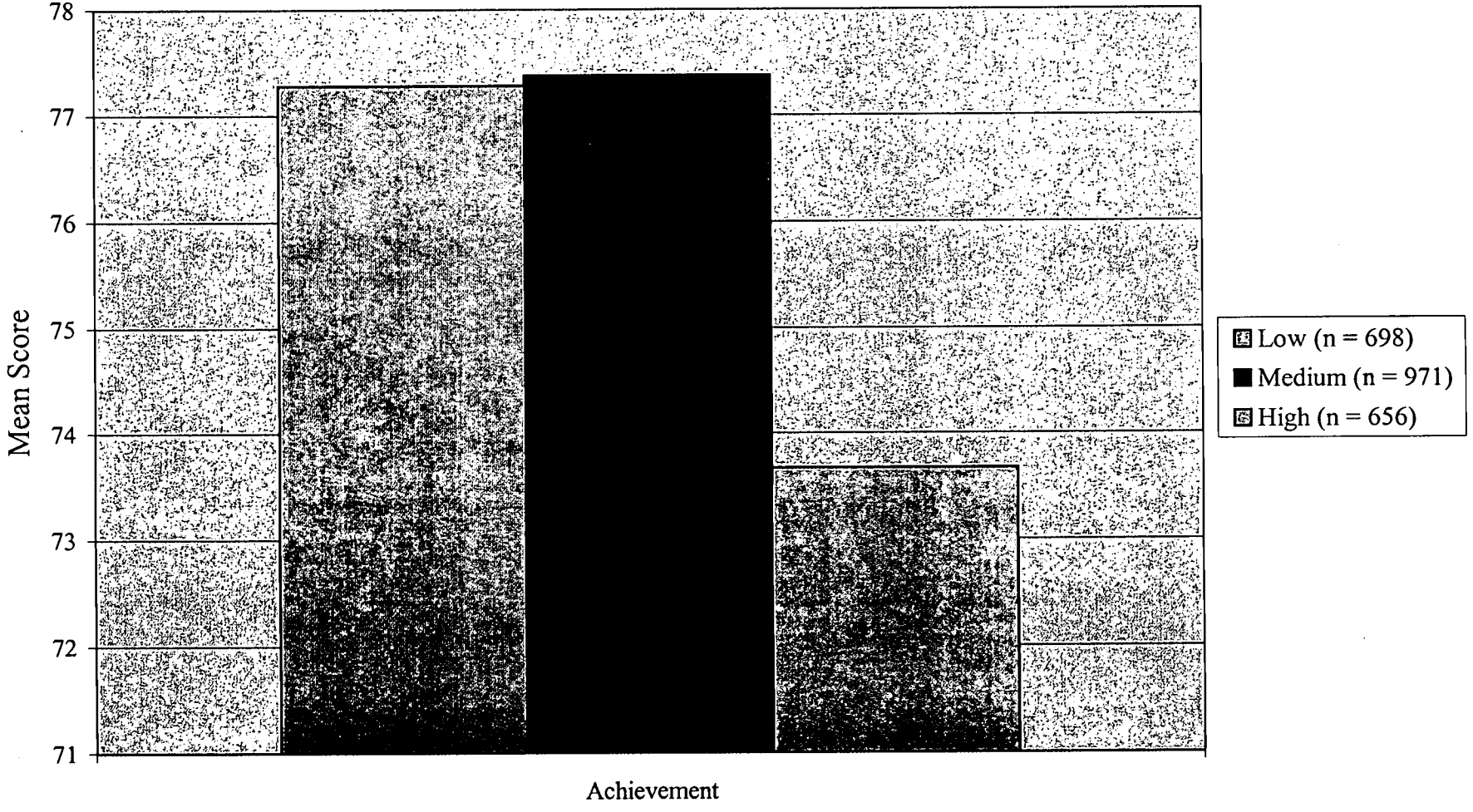


Figure 6
Differences in the Amount of Student Disruptive Behavior based on Student Perceptions of their Teacher's Degree of Learner-Centeredness

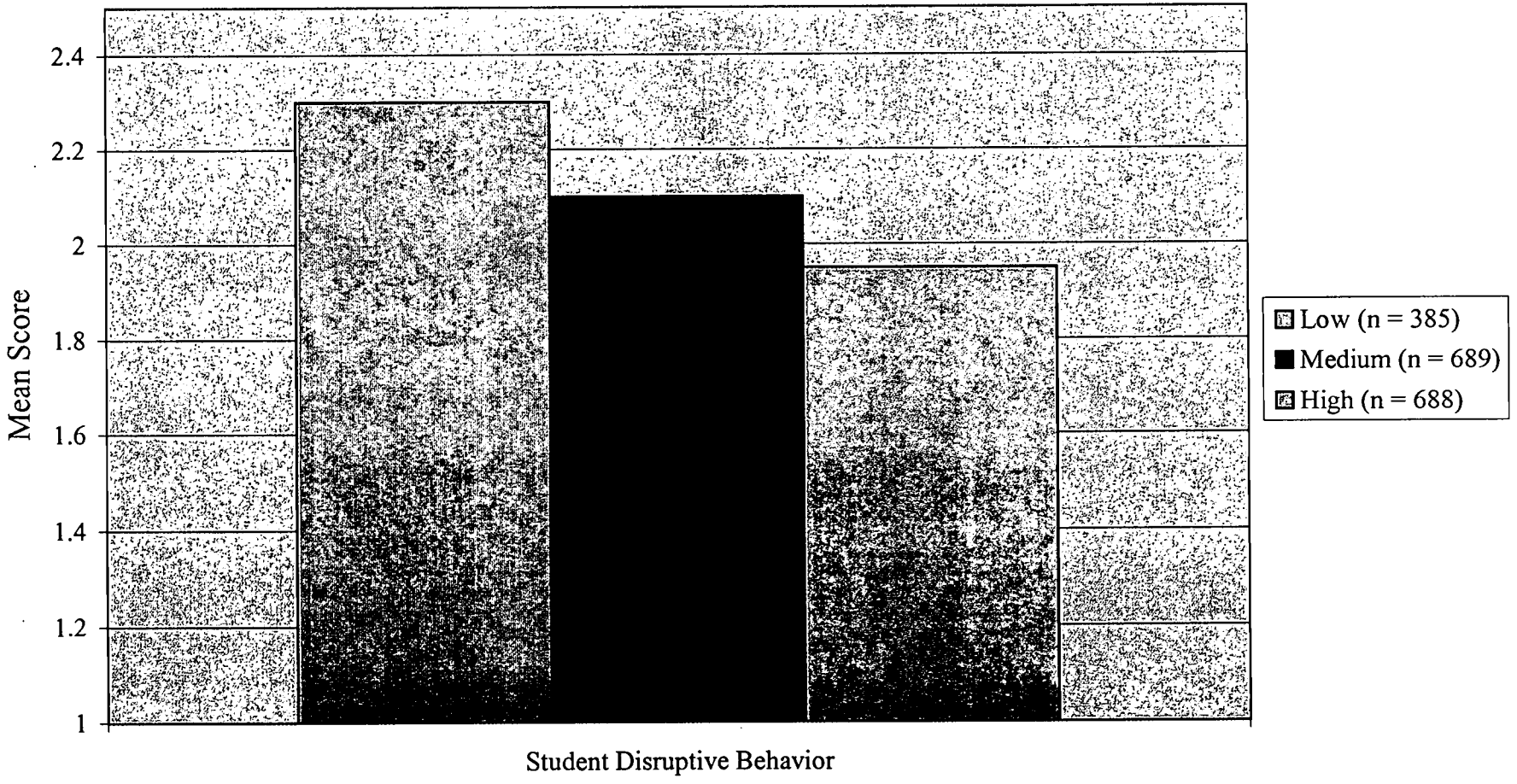
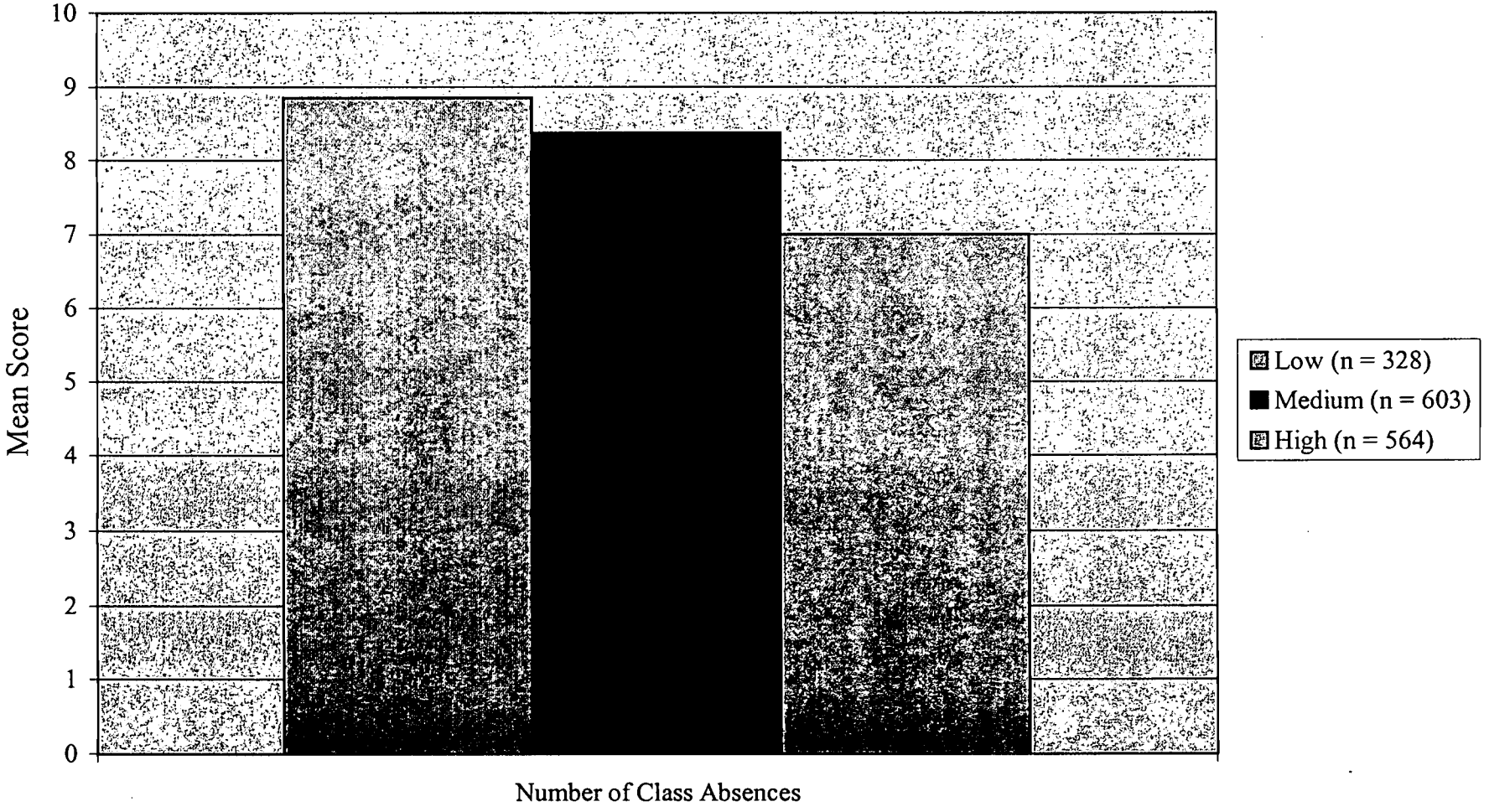


Figure 7
Differences in the Number of Class Absences based on Student Perceptions of their Teacher's Degree of Learner-Centeredness



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